MDOT
Michigan Department of Transportation

WEST MICHIGAN
TRANSPORTATION
OPERATIONS CENTER

www.Michigan.gov/WMTOC

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Monthly Performance Measures

December 2019

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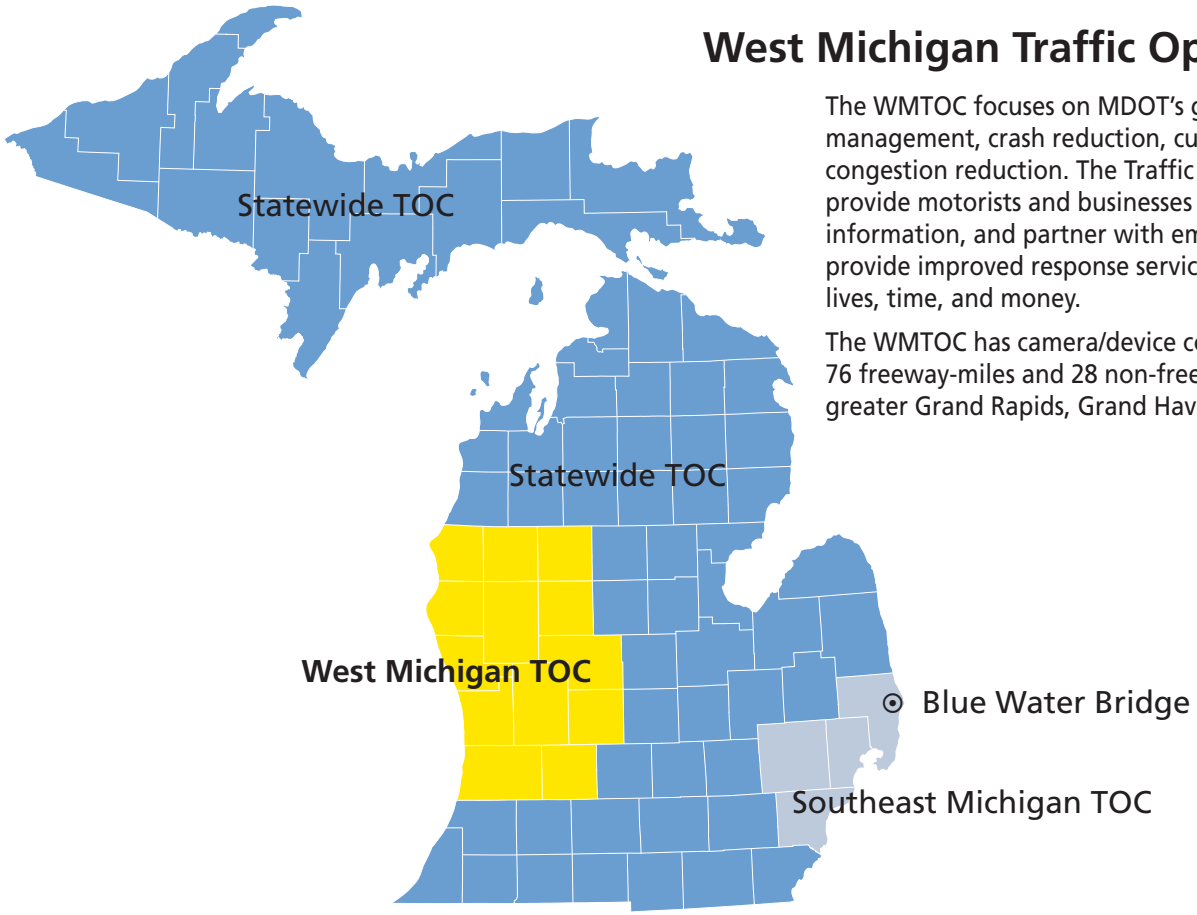
MDOT'S MISSION

Providing the highest quality integrated transportation services for economic benefit and improved quality of life.



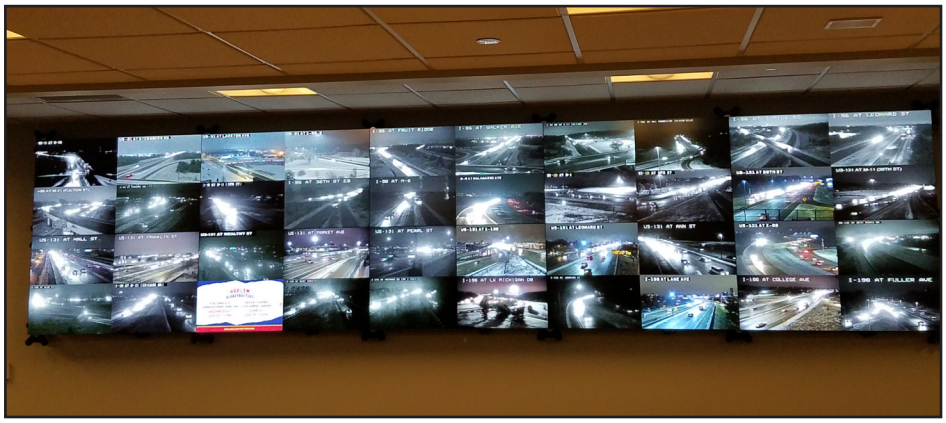
West Michigan Traffic Operations Center

The WMTOC focuses on MDOT's goals of incident management, crash reduction, customer information, and congestion reduction. The Traffic Operations Centers (TOC) provide motorists and businesses with real-time traffic information, and partner with emergency response agencies to provide improved response services to traffic crashes – saving lives, time, and money.

The WMTOC has camera/device coverage on approximately 76 freeway-miles and 28 non-freeway trunkline-miles in the greater Grand Rapids, Grand Haven, and Muskegon areas.

December 2019 Spotlight

Video Wall Update



In December, the West Michigan Transportation Operations Center (WMTOC) underwent a transformation with the installation of a new video wall. Several people were involved in the process as the old projection-style video wall was temporarily moved so operators could continue to use it while preparations were carried out to install the new video wall. The hole from the old video wall was repaired and supports for new monitors were installed. New monitors were put in place and the old video wall was permanently decommissioned. The new wall is five-monitors-wide and two-monitors-tall for a total of 90 square feet, which allows operators to simultaneously display 40 camera feeds. Updated software allows users to make changes quickly and includes some added functionality.

On Tuesday, Dec. 31, west Michigan received a blast of winter weather involving several crashes throughout the region. Roads already snow-covered continued to accumulate snow, contributing to hazardous travel conditions. The most impactful crashes occurred on I-196 near downtown Grand Rapids. In two events, the roadway was closed for nearly an hour, causing motorists to adjust their travel to circumvent the closure. Control room operators displayed messages for closures on dynamic message signs, posted information on the Mi Drive website, and sent out e-mail and Twitter notifications to motorists and stakeholders.

The WMTOC provides up-to-date information to motorists and stakeholders to assist them in making informed decisions about their travel routes.

Events by Type

Figure 1 shows events by type.

Event: An occurrence within the transportation operations center (TOC) coverage area that requires action or tracking.

Unplanned Events: An incident or other uncontrollable event that directly affects a Michigan Department of Transportation (MDOT) roadway. Unplanned events include Incidents (crashes, disabled vehicles and debris in the roadway) and other events (weather, congestion, and unclassified).

Planned Events: Events that are scheduled. These include construction, maintenance, and special events.

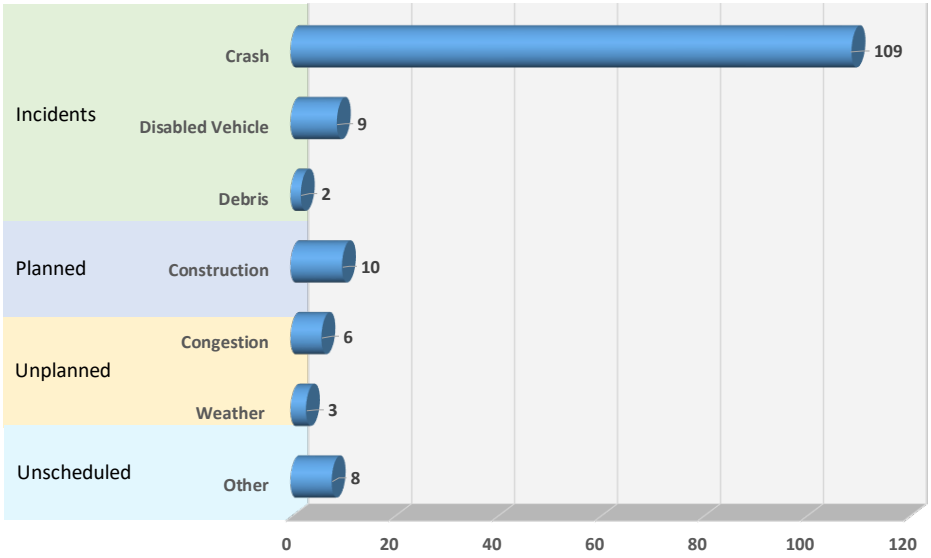


Figure 1

Of the **147** total events this month, **120 (82 percent)** were classified as **Incidents**.

Construction season in Michigan began in April. With the beginning of this season, MDOT deployed several temporary portable changeable message signs (PCMS). This month there were **169** auto responses. Auto response events are created automatically based on slower than normal speeds for a period of time. Speeds are detected by several sources and the traffic management software sends pre-determined messages to dynamic message signs (DMS) and PCMS to alert motorists about traffic conditions ahead.

Incidents by Detection Source

Figure 2 provides information on detection sources.

Control room operators (CRO) rely on various sources to detect incidents that occur along the freeways. Noting the source ensures that the incident was detected by a reliable source and provides insight on which sources provide the most information.

Figure 2

Communication

Figure 3 shows communication managed by CROs displayed by type.

WMTOC tracks all incoming and outgoing communications to the control room. This includes phone calls, e-mails sent and received, and notifications sent to stakeholders.

CROs managed **3,123** communications this month. Of those communications, **2,598 (83 percent)** were e-mails, including notifications, and **525 (17 percent)** were phone calls.

The WMTOC communicates most with police and fire agencies throughout the region. This includes Michigan State Police, county 911 centers, and the City of Grand Rapids police/fire dispatch.

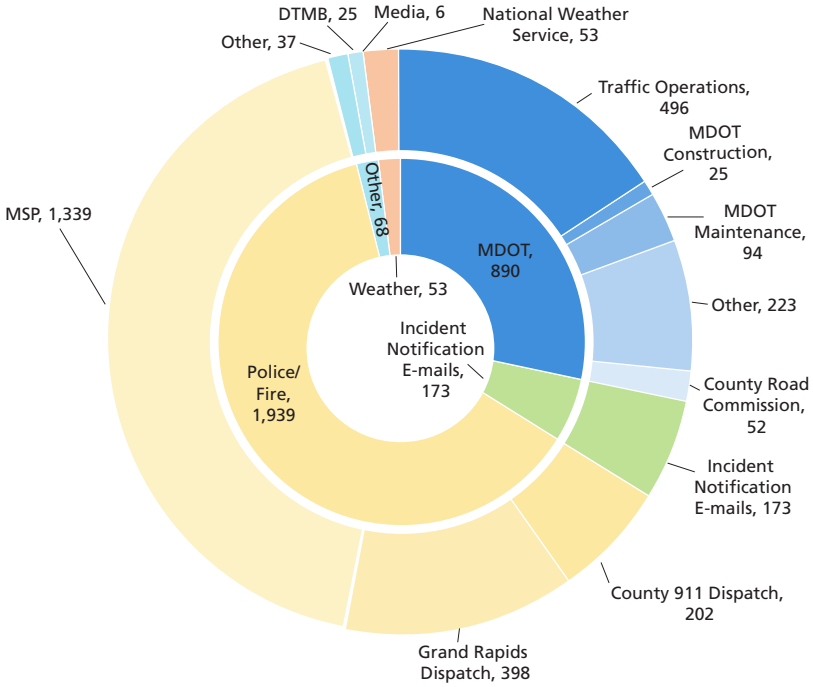
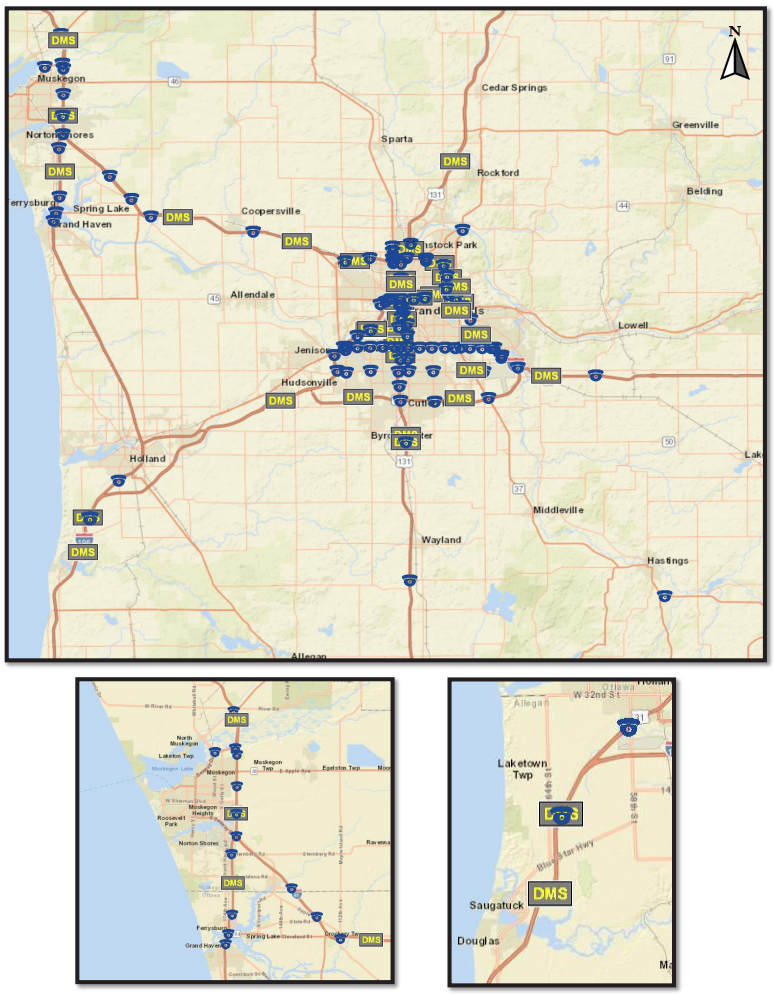


Figure 3

Device Locations



DMS Messages by Type

There were **126** "unique messages" displayed throughout the intelligent transportation systems network this month, as shown in **Figure 4**.

"Unique messages" include incidents, special events, congestion, weather, construction, or AMBER alerts.

Travel time messages are routinely displayed when unique messages are not active. Travel times are updated every three minutes.

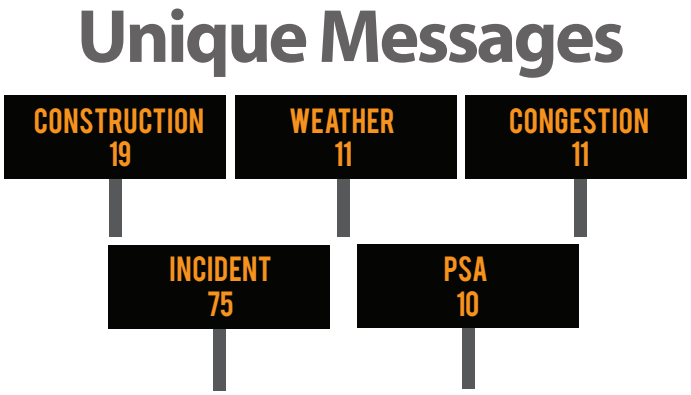


Figure 4

Field Device Availability

The WMTOC tracks the availability of all system devices so that timely maintenance can occur. Reliability of the devices ensures that the operators have tools available to accurately provide traffic conditions to the motoring public. **Table 1** shows field device availability for this month.

Device Type	Number of Devices	Percent Available
Cameras	84	99%
DMS	36	97%
Microwave vehicle detection system	140	68%

Table 1

Winter Weather Advisory Activities

The WMTOC tracked all incidents of winter weather advisory events that occurred in each of the Grand Region counties. **Figure 5** shows the total number of incidents and weather advisory days by county.

There were **23** incidents that occurred during winter weather advisories, accounting for **19 percent** of incidents for the month.

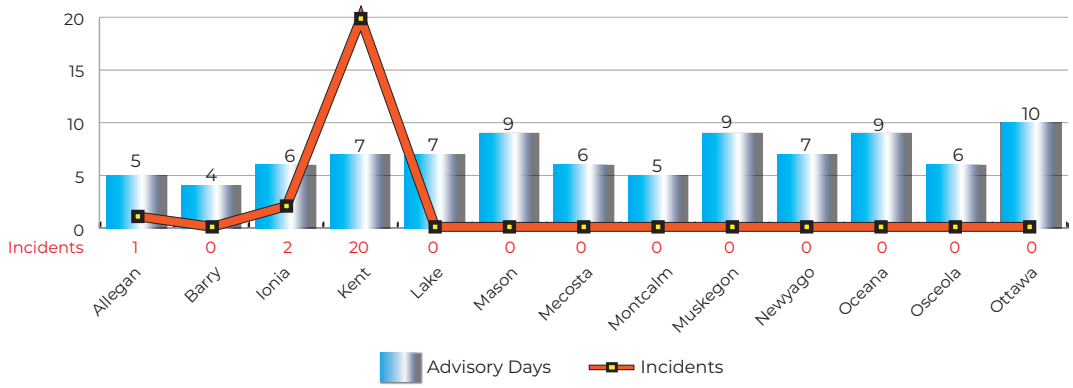


Figure 5

Incidents on Key Routes

Table 2 indicates that **US-131** had the highest total number of incidents and the highest per mile rate in December. **I-96** had the longest incident duration for the month. The table shows incidents for high-volume roadways in the Grand Region.

		December 2019			December 2018			Previous 12-month Avg.		
Route	Miles	Total Incidents	Incidents Per Mile	Average Duration	Total Incidents	Incidents Per Mile	Average Duration	Total Incidents	Incidents Per Mile	Average Duration
I-96, US-31 to M-50	52	22	0.4	1:30	14	0.3	0:40	18.9	0.4	1:00
I-196, Blue Star Hwy to I-96	40	23	0.6	0:35	28	0.7	0:41	21.7	0.5	0:51
US-131, 84th St to Rockford Rest Area	24.5	60	2.4	0:38	42	1.7	0:41	58.9	2.4	0:45
US-31, I-96 to M-120	8	2	0.3	0:26	9	1.1	1:08	6.3	0.8	1:36
M-6, I-196 to I-96	19	0	0.0	0:00	4	0.2	0:40	3.9	0.2	1:00
M-11, I-196 to I-96	11.5	2	0.2	0:32	1	0.1	2:51	2.0	0.2	0:50
M-37/M-44, M-6 to West River Dr	15.5	4	0.3	0:43	1	0.1	1:12	3.3	0.2	0:50

Table 2

Table Key Increase | No Change | Decrease — Data is compared to the same month of the previous year.

Total Unplanned Incidents

There were **120** total unplanned incidents this month; **86 percent** of these were high-impact incidents. A high-impact incident is one that results in a total freeway closure, a ramp closure, or a lane closure.

Incident information is shown in **Figure 6**.

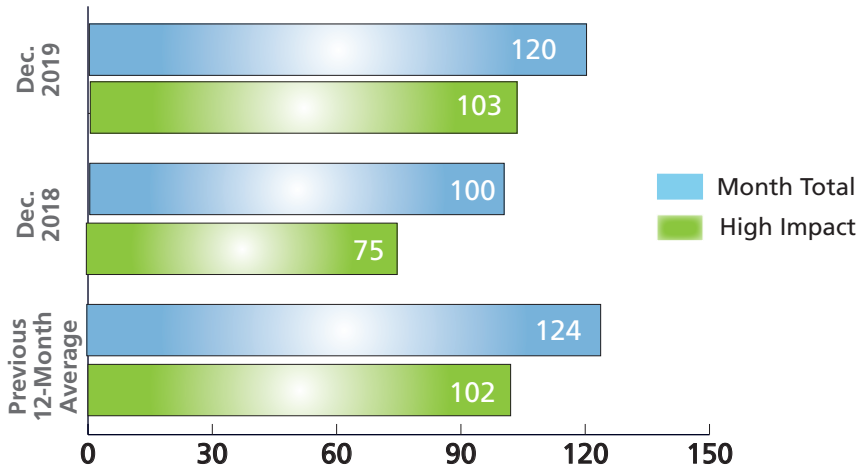


Figure 6

High-Impact Incidents

Forty-one percent of high-impact incidents this month occurred along **US-131**. For most high-impact incidents, CROs provide e-mail notifications to stakeholders in the affected area. The notification includes the location of the incident, the degree of closure, the reason for the closure, and any other pertinent information related to traffic operations. See **Table 3**.

Closure Type	Dec. 2019	Dec. 2018	Previous 12 - Month Avg.
Freeway Closure	12	12	16.5
Lane Closure	86	63	85.7
Ramp Closure	5	0	0
Total	103	75	102.2

Table 3

Work Zone-Related Events

There were **0 incidents** identified by operators as being related to work zones during this month.

Top Duration Incidents

The longest-duration incident this month occurred on **I-96 at Kent Street,** which lasted **14 hours, 32 minutes**. The average incident duration for December was **50 minutes**. See **Table 4.**

Location	Date	Duration	Details
I-96 at Kent Street	Dec. 18	14:32	Crash
US-131 at 19 Mile Road	Dec. 22	3:33	Crash
US-131 at US-10	Dec. 22	3:23	Crash
I-96 after 68th Avenue	Dec. 27	2:59	Crash
I-96 at Kent Street	Dec. 31	2:35	Crash

Table 4

Total Incidents per Weekday Hour

The WMTOC operates 24 hours per day, 7 days per week. The WMTOC is staffed locally during peak traffic hours, typically 6 a.m. to 8 p.m. Operations are transferred to the Statewide Transportation Operations Center during off-peak hours.

During the month of December, **6 a.m.** had the largest hourly number of incidents. Historically, **3 p.m.** has the greatest number of incidents in the Grand Region. **Figure 7** shows **incidents** for weekdays for this month.

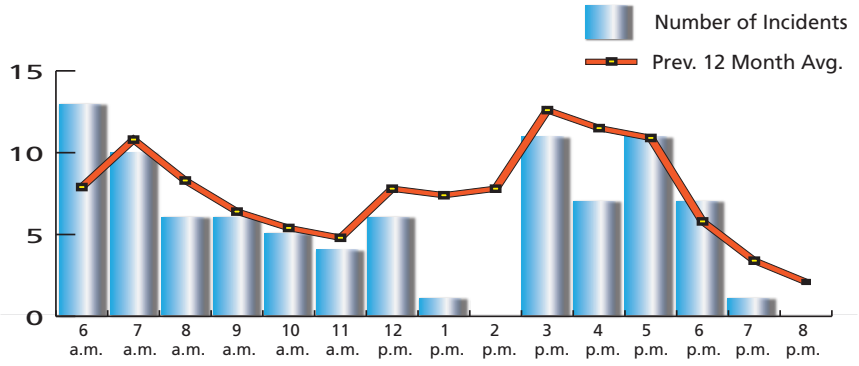


Figure 7

Incident and Roadway Clearance Times

MDOT shares a goal with local first responders to clear incidents from the roadway as quickly as possible. Reducing overall incident clearance times limits the risk to travelers and responders on scene. Effective response and clearance improves safety for motorists as well as first responders. MDOT's goal is to minimize delays caused by incidents as well as the occurrences of secondary incidents.

Roadway clearance time: The time between the awareness of an incident and confirmation that all lanes are open to traffic.

Incident clearance time: The time between the awareness of an incident and when all involved vehicles are removed from the scene.

Figure 8 shows a breakdown of the number of incidents in each time to clear bracket. **Figure 9** illustrates the average roadway and incident clearance times for the month.

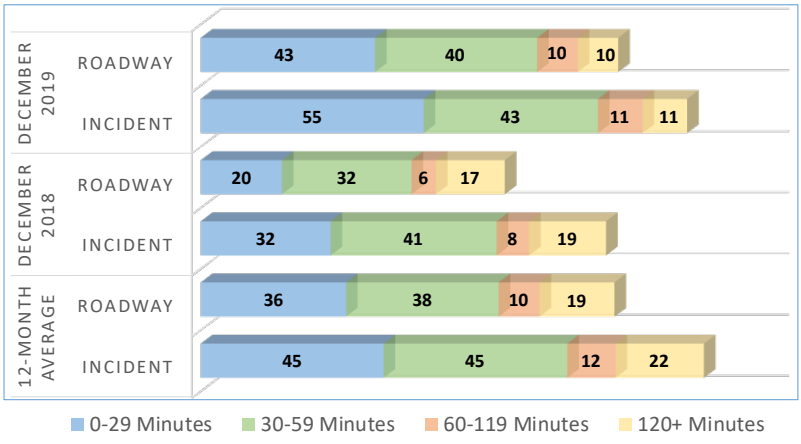


Figure 8

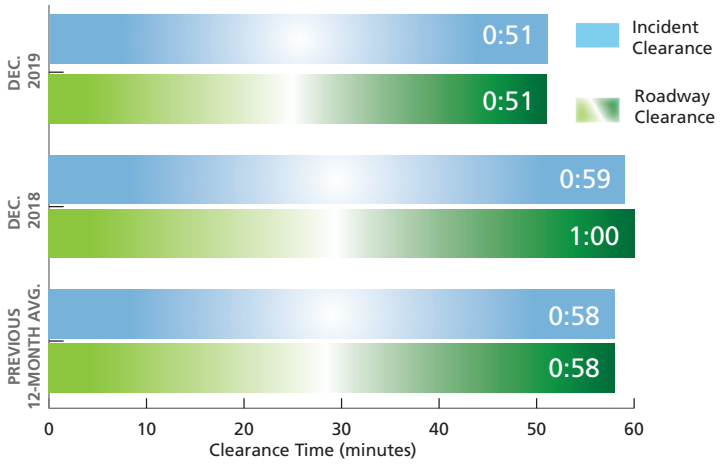


Figure 9

Secondary Crashes

Out of the **109** total crashes this month, **1 percent** were **Secondary Crashes** as observed by WMTOC CROs.

Crash Hot Spot and Most Used DMS Activity

Figure 10 shows areas where the greatest number of crashes occurred in the reported month. The shading starts with yellow for fewer crashes, then transitions to red for a moderate number of crashes, and finally to purple for the highest number of crashes based on the total crashes that occurred. The top five most used DMS are also depicted on the map. The direct correlation can be seen between the areas of most crashes to DMS utilization.

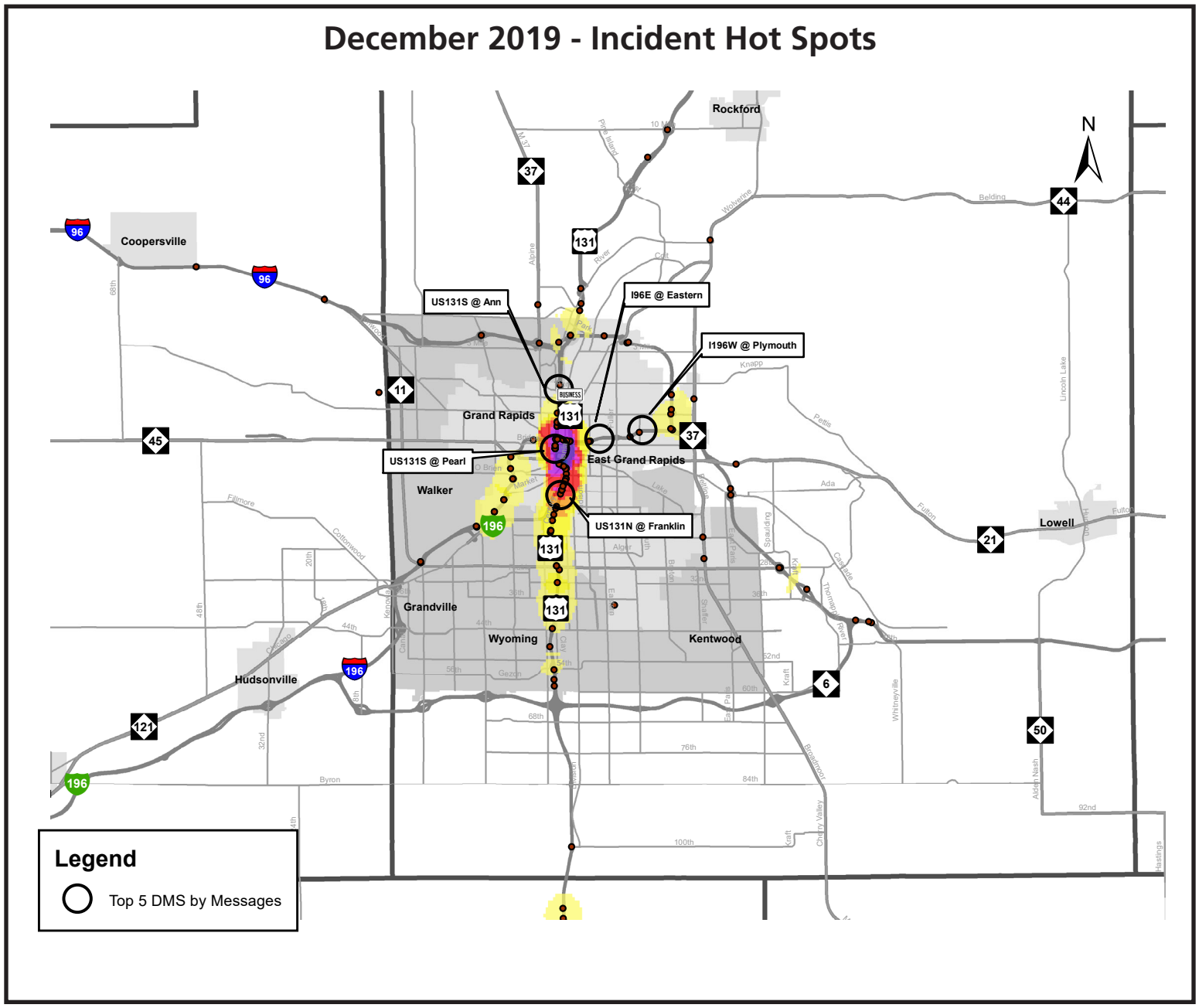


Figure 10